JOHANNES GUTENBERG UNIVERSITÄT MAINZ

PhD position in a research project on psychoacoustics at Johannes Gutenberg-Universitaet Mainz: Development of a dynamic loudness model including perceptual weights

Institute of Psychology
Experimental Psychology

Dr. Daniel Oberfeld-Twistel
Associate professor

Johannes Gutenberg-Universität Mainz

Wallstraße 3
D-55122 Mainz
Germany

Tel. +49 6131 39-39274
Fax +49 6131 39-39268

oberfeld@uni-mainz.de

http://www.staff.uni-mainz.de/oberfeld/

We seek to fill a position for one doctoral student who will be supervised by Dr. Daniel Oberfeld-Twistel, Institute of Psychology, Section Experimental Psychology, Johannes Gutenberg-Universität Mainz, Germany. Start date is negotiable but we aim to fill the position by March 2017.

Project description:

The position is part of a project funded by Deutsche Forschungsgemeinschaft (www.dfg.de). The aim of the project is the development of a computational model for the loudness of time-varying sounds. The project is a collaboration between the working group of Daniel Oberfeld-Twistel in Mainz and the working group of Jesko Verhey (Experimental Audiology) at University of Magdeburg, Germany. Hearing experiments showed that listeners assign different weights to different portions of the sound. For example, the initial portion of a sound is more important for loudness than later points in time. Current loudness models and methods for the calculation of loudness used in international standards cannot account for these psychoacoustic data. The first aim of the project is to gain a better understanding of how weights are assigned by humans when evaluating the loudness of a sound. We will use state-of-the-art psychophysical methods, in particular perceptual weight analysis / behavioral reverse correlation (cf. http://dx.doi.org/10.1371/journal.pone.0050184). The second aim is to develop a new loudness model that includes a specific weighting of different components of the sound when calculating its loudness.

Requirements:

- Genuine enthusiasm for research on auditory perception

- MSc degree or equivalent in psychology, physics, cognitive neuroscience, electrical engineering, or another subject relevant for the research project (in order to fulfill the requirements for a PhD at Universität Mainz)

- Prior experience in at least two of the following areas: psychoacoustics / auditory perception, psychophysics, experimental psychology, statistics, cognitive modeling

- Programming skills (ideally in Matlab) are considered valuable

- Excellent oral and written communications skills in English (minimum requirement: Common European Framework of Reference for Languages (CEF) level C1). German language skills are not mandatory.

Your tasks:

- To design and program behavioral experiments on loudness perception. To conduct the experiments with human subjects. To analyze the data.

- Contribution to the modeling of the results is possible.

- Publication of the results in international journals with peer review, presentations at German and international conferences.

Gains:

- We offer an attractive research environment with excellent technical facilities.
- You will conduct research in an interdisciplinary team, with regular team meetings in Mainz and Magdeburg.
- You will receive intensive supervision and laboratory training.
- We have excellent national and international connections in psychoacoustics and in experimental psychology.
- Mainz is a vibrant city with one of Germany's largest universities, beautifully located on river Rhine in the Rhine-Main Metropolitan Region, which offers an excellent infrastructure. Mainz is a Great Wine Capital, surrounded by Germany's largest wine-producing area with a mild climate.

This is a fully funded, fixed-term (3 years) 75% position, paid on the German TV-L E13 government scale. Gross salary approx. 33,000 €/year, net income approx. 20,600 €/year (after taxes, social security and health insurance).

The Johannes Gutenberg-Universität aims to increase the proportion of women researchers and specifically encourages women to apply. Applications from disabled persons will be given priority in the case of equal suitability.

For further information please contact Dr. Daniel Oberfeld-Twistel (oberfeld@uni-mainz.de, http://www.staff.uni-mainz.de/oberfeld/index.html).

Please send your application with letter of motivation, CV, information about research experience, certificates, publications (if applicable) and contact data of one to two references as a single PDF to Dr. Daniel Oberfeld-Twistel (oberfeld@uni-mainz.de). Applications will be accepted until the position is filled.